AMENDMENTS TO THE SPECIFICATION:

Please amend the paragraph beginning at page 35, line 10 of the specification as follows:

General scheme of the polarizer and compressor, based on the method of direct optical pumping of ~~.sup.~~^{3}He according to the ~~state of the art~~prior art;

Please amend the paragraph beginning at page 37, line 23 of the specification as follows:

FIG. 2 shows the polarizer and compressor according to ~~state of the art~~prior art techniques (1). It consists of 5 main assemblies: Gas is taken from a gas provision system 200, nuclear spin polarized at pressures between 0.5 and 5 mb in a polarization unit 300, compressed to final pressures of up to 10 bar in a compression unit 400 and finally stored in a joined storage unit 500 for some period of time during transport and application. A prerequisite to conserve the polarization for a long time is a homogenous magnetic field, assembly 100, embedding systems 300, 400 and 500 which produce and sustain the nuclear polarization. A typical magnetic field strength is 0.8 mT.

Please amend the paragraph beginning at page 41, line 22 of the specification as follows:

Within the valve housing 1010, a tappet rod 1020 is moved in a linear way by an external drive 1030. At closed position,

the tappet closes off the connection between the valve drill-holes 1011 and 1012. Advantageously, a slide seal, e.g. a gasket ring 1021 made e.g. of rubber in form of an O-ring, preferably made of Viton, provides a sufficient seal, even at a pressure difference of up to 10 bar. Further gasket rings 1022 and 1023 separate the actual valve region 1011 and 1012 from a ~~rear~~ intermediate volume 1014 of the valve and the outer atmosphere 115 with valve drive 1030. These gasket rings may be preferably realized as two-lip seal rings. The ~~rear~~ intermediate volume 1014 is evacuated via the outlet 1013. This is accomplished e.g. via pipeline 612, valve 625 and pump 602 (FIG. 5a). From now on, this sealing principle, which involves selective pumping of intermediate volumes, is called "fractional pumping".

Please amend the paragraph beginning at page 42, line 5 of the specification as follows:

This construction avoids an expendable and temperamental bellow as UHV separation between atmosphere and ultra-clean gas space. Air leaking in via gasket ring 1023 is pumped out via pump 602. The remaining diffusion of residual gas out of the ~~rear~~ intermediate volume 1014 via seal 1022 into the actual valve region 1011, 1012 is negligible and distinctly lower than the desorption from metal surfaces and gasket rings 1021 and 1022. An important feature of this construction, with regard to the aforementioned desorption rates, is, that the distance between the gasket rings that define the intermediate vacuum region is larger than the stroke of the tappet. Hence the parts of the inner valve surface that absorb gases outside the vacuum region cannot become part of the ultra-clean interior and re-desorb the adsorbed gases there. The gas transport via this

adsorption-desorption cycle in the intermediate vacuum region is rather intercepted.

Please amend the paragraph beginning at page 42, line 26 of the specification as follows:

As shown schematically in FIG. 4c, these valves are preferably grouped together as an assembly. In doing so, the ~~rear~~ intermediate volumes, e.g. 1014a and 1014b, are connected by a fine-pointed drill-hole 1013a and evacuated together via the pipeline 1013. Such a group of valves is preferably integrated within the head of the compressor. Further valves employed in the apparatus, for instance valves 624, 627, 629, 210, are also preferably grouped together. Thus, the accordingly designed valves, like e.g. 612 at drill-hole 1013, can be realized in a space and material saving manner, with short pumping distances and without a multitude of pipelines.